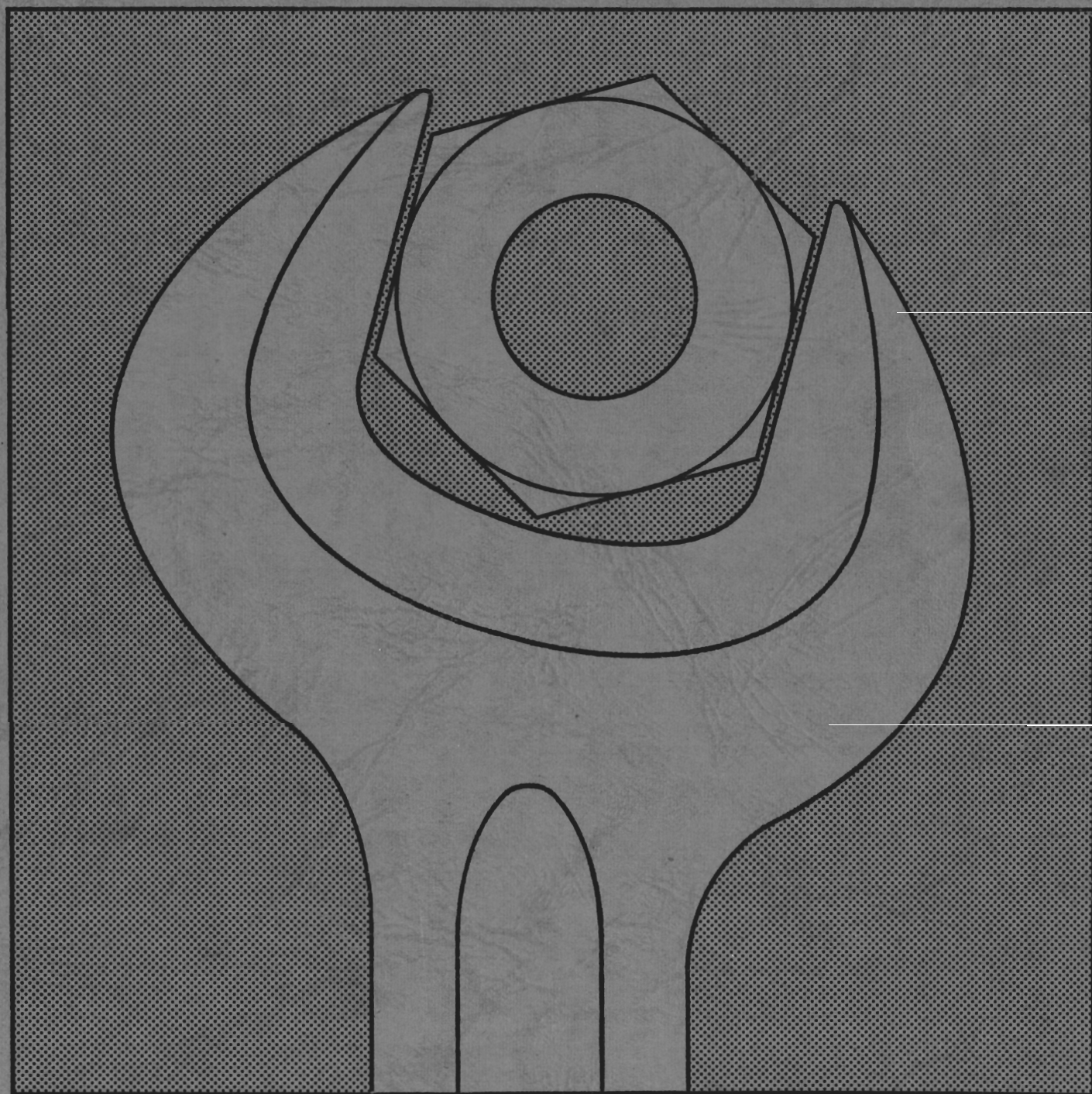




Shop Service Manual

STIHL 08 S Model 1108



Service Shop Manual for Power Chain Saw STIHL 08 S - Model 1108

This Shop Service Manual relates to our model STIHL 08 S beginning with machine No. 2 181 799, January 1969.

See our periodically published Technical Informations for repairing power saws of same model but of older design with a lower machine number than mentioned above and for any technical modifications which will be carried out after this workshop manual being printed.

This Guide Book should be used only for the instruction of our dealers and authorized service shops. Handing over or lending this manual to other persons is prohibited.

CONTENTS

Specifications	2	Andreas Stihl Maschinenfabrik 705 Waiblingen P.O. Box 64 Phone Waiblingen (0 71 51) 2 10 81 Telex 07 24314 Cable address Stihl Waiblingenrems
Saw chain drive Disassembly and repair	4	
Guide bar and chain tensioning device	6	
Chain oil tank and oil pump Repair – trouble causes – disassembly of oil pump	8	
Carburetor Design and operation – carburetor and its individual parts – carburetor adjustments – pressure testing carburetor	9	
Rewind starter Disassembly and repair – relieving tension of rewind spring – assembly of a new starter rope	13	
Speed governor	15	
Ignition system Disassembly and repair – ignition timing	15	
Spark plug	19	
Cylinder, piston and crankshaft Pressure testing crankcase	19	



Specifications

We reserve the right to make changes in design whenever it is deemed necessary or an advantage.

Engine

STIHL-One Cylinder-Two Cycle

Piston displacement:	56 cm ³ (3.41 cu. in.)
Cylinder bore:	47 mm (1.88 in.)
Piston stroke:	32 mm (1.28 in.)
Cylinder wall:	heavy chrome plating
Crankshaft bearings:	grooved ball bearings
Piston pin bearing:	needle cage
Rewind starter:	Forced engagement with automatic rewinding of starter rope
Starter rope:	1000 mm (40 in.) long, 4.5 mm (.18 in.) in diameter
Clutch:	Centrifugal clutch with pressed-on friction linings
Pressure test of crankcase:	Testing pressure 0.5 kp/cm ² (7.1 lbf./in. ²)

Fuel system

Carburetor:	All-position HL Tillotson diaphragm carburetor with integral fuel pump
Main adjustment screw H:	1 turn open
Idle adjustment screw L:	3/4 of a turn open (measured from seated position of adjustment screws)
Pressure test of carburetor:	0.4 kp/cm ² (5.7 lbf./in. ²)
Fuel tank capacity:	0.76 l (1.61 pints)
Fuel mixture:	Mixing ratio 1 : 25 (1 part oil to 25 parts gasoline) SAE 30 oil
Air filter:	Round filter with wire gauze

Ignition system

Bosch flywheel magneto	
Magneto edge gap:	6 to 9 mm (.24 to .36 in.)
Ignition timing:	2 mm (.08 in.) before T.D.C.
Breaker point gap:	0.35 to 0.4 mm (.014 to .016 in.)
Spark plug:	Bosch WKA 175 T 7 Heat range 175 Electrode gap 0.5 mm (.02 in.)

Torques for screws and nuts

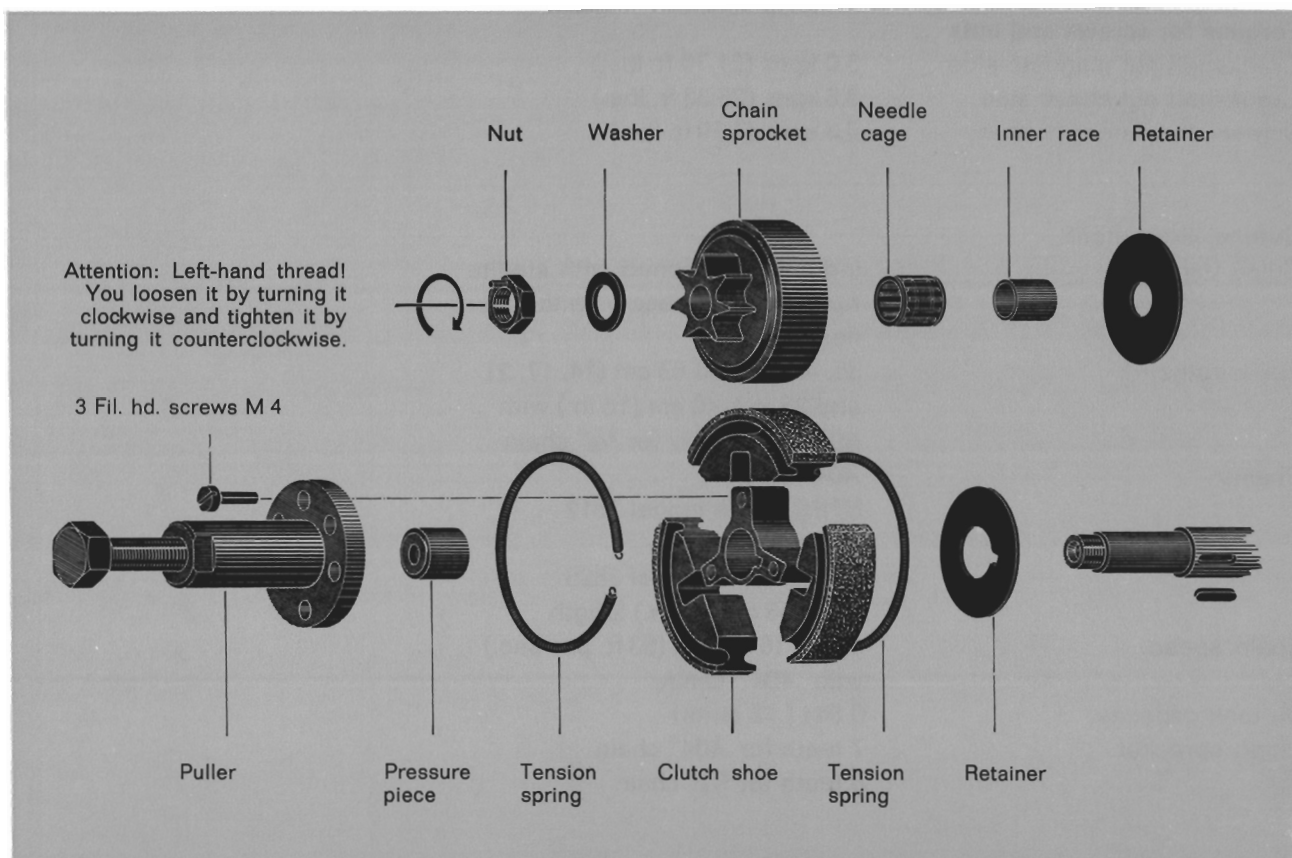
Crankshaft nut magneto side:	3.0 kpm (21.70 ft. lbs.)
Crankshaft nut clutch side:	3.5 kpm (25.33 ft. lbs.)
Screws at cylinder bottom:	0.8 kpm (5.79 ft. lbs.)

Cutting attachment

Guide bars:	induction-hardened with stellite tipping at bar nose or with roller nose
Bar lengths:	35, 43, 53 and 63 cm (14, 17, 21 and 25 in.), 40 cm (16 in.) with roller nose only for $\frac{3}{8}$ " chain
Chains:	.404" pitch STIHL chain model 3812 $\frac{3}{8}$" pitch STIHL chain model 3825 up to 53 cm (21 in.) length
Chain speed:	about 16 m/sek (53 ft. per sec.) with .404" chain
Oil tank capacity:	0.34 l (.72 pints)
Chain sprocket:	7 teeth for .404" chain 8 teeth for $\frac{3}{8}$ " chain

Weight of saw:	7.9 kgs. (17.4 lbs.) with 35 cm (14 in.) bar and chain
-----------------------	---

Extras:	STIHL spare part emergency kit 08 S
----------------	--



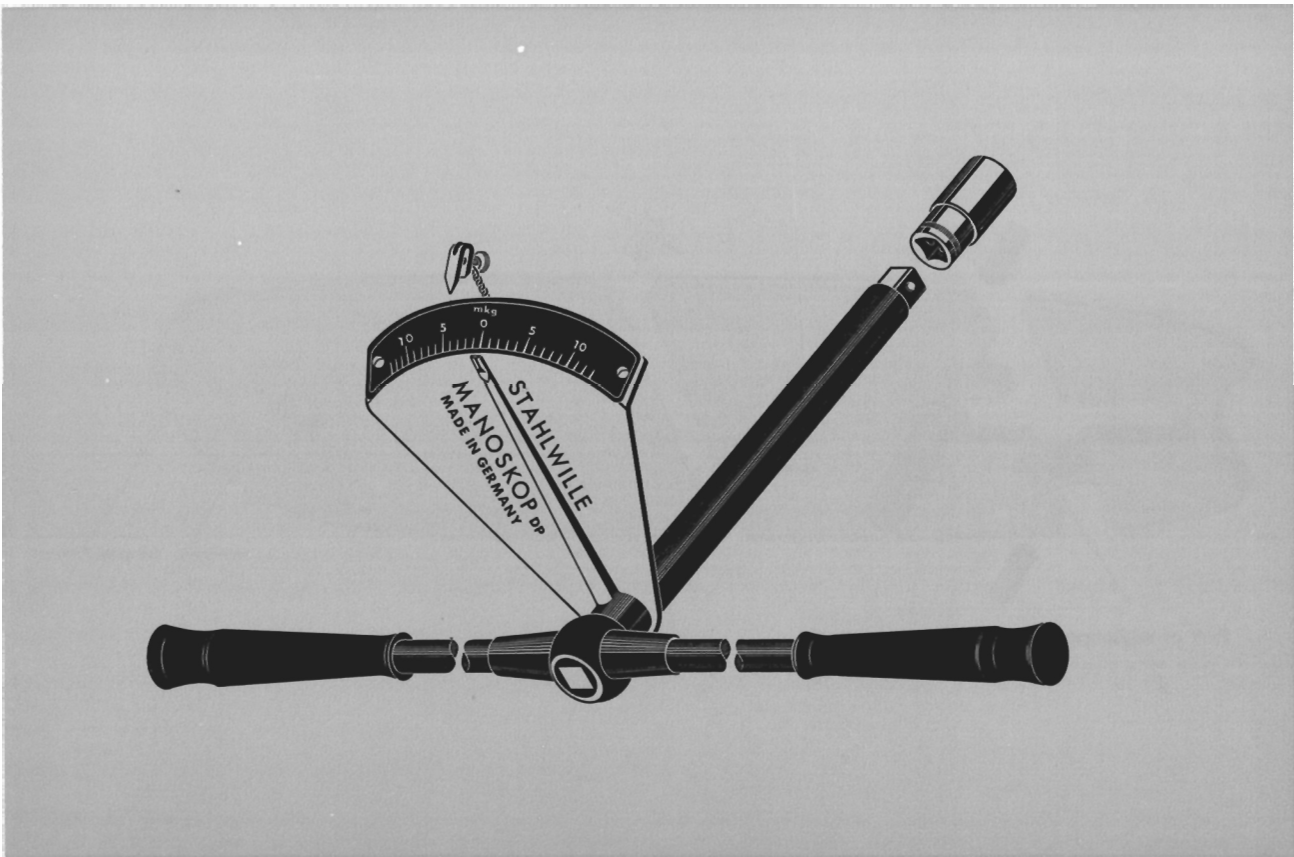
Saw Chain Drive Disassembly and Repair

The chipper chain of the power saw 1108 is driven by the crankshaft via a centrifugal clutch.

The crankshaft has a left-hand thread at the clutch side. Therefore, loosen hexagonal nut by turning it clockwise. For locking the crankshaft remove spark plug and screw crankshaft locking screw from tool kit into the cylinder. Turn crankshaft slowly to lock it. When unscrewing or tightening the nut, the piston should bottom on the crankshaft locking screw. Don't use a hammer to loosen the nut.

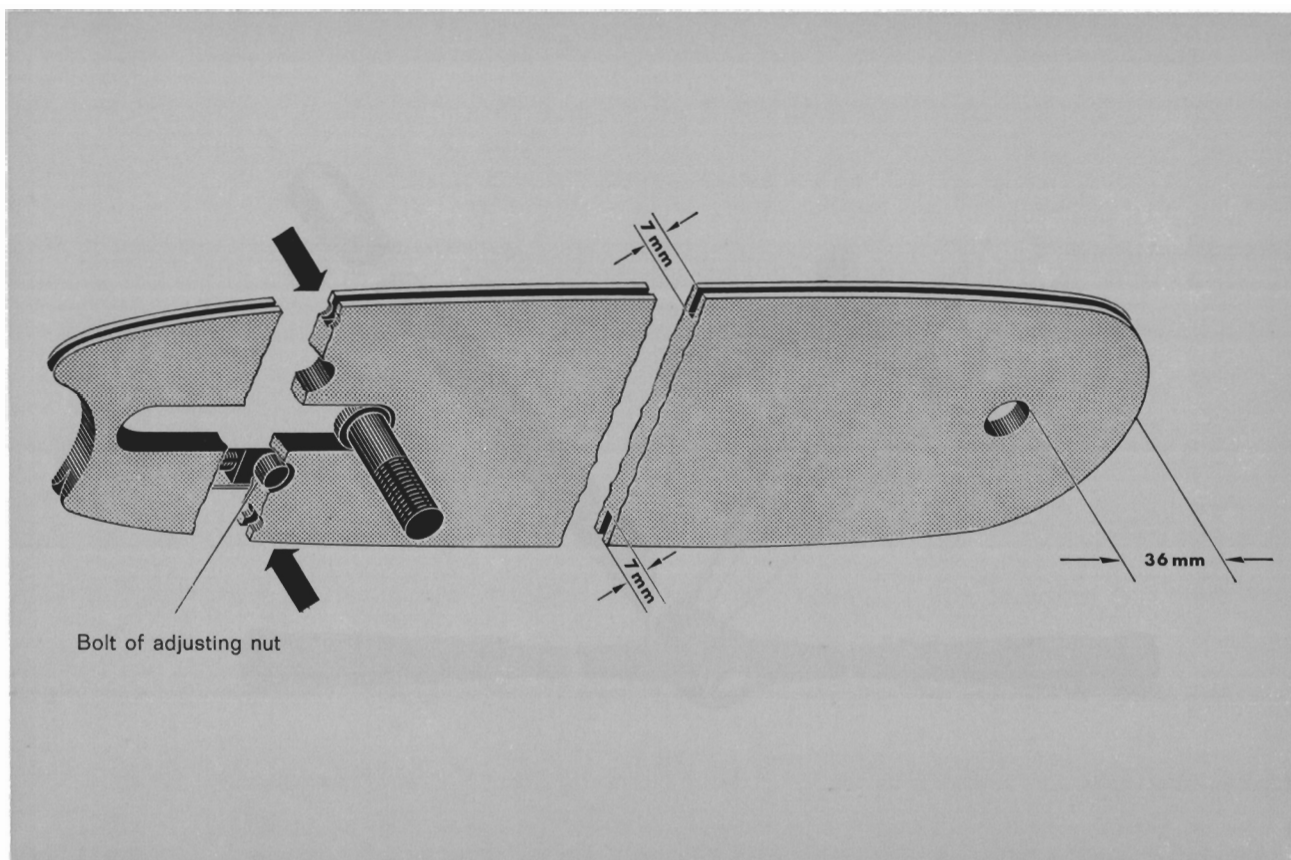
The chain sprocket with needle bearing and washer can be removed easily. The clutch is connected with the crankshaft by an adjusting spring. Use clutch puller for removing clutch. Be careful not to loose the adjusting spring. Pry the two clutch springs off the annular groove with a screwdriver.

The friction linings of the clutch shoes wear after prolonged operation. If friction linings are worn you must replace the complete set of clutch shoes. The same applies to the clutch springs. If a clutch spring is broken or stretched, exchange only the complete set of clutch springs.



When re-assembling the clutch check to be sure that the clutch linings are absolutely oil and grease free. Oil and grease would cause slipping of the clutch and would reduce the effectiveness of the clutch.

The chain sprocket is supported on the crankshaft by a needle bearing (which must be greased with ball bearing grease every two months). If the wear of the chain sprocket is more than 0.04" (1 mm) the chain sprocket must be replaced. Don't install chain sprockets of other makes.



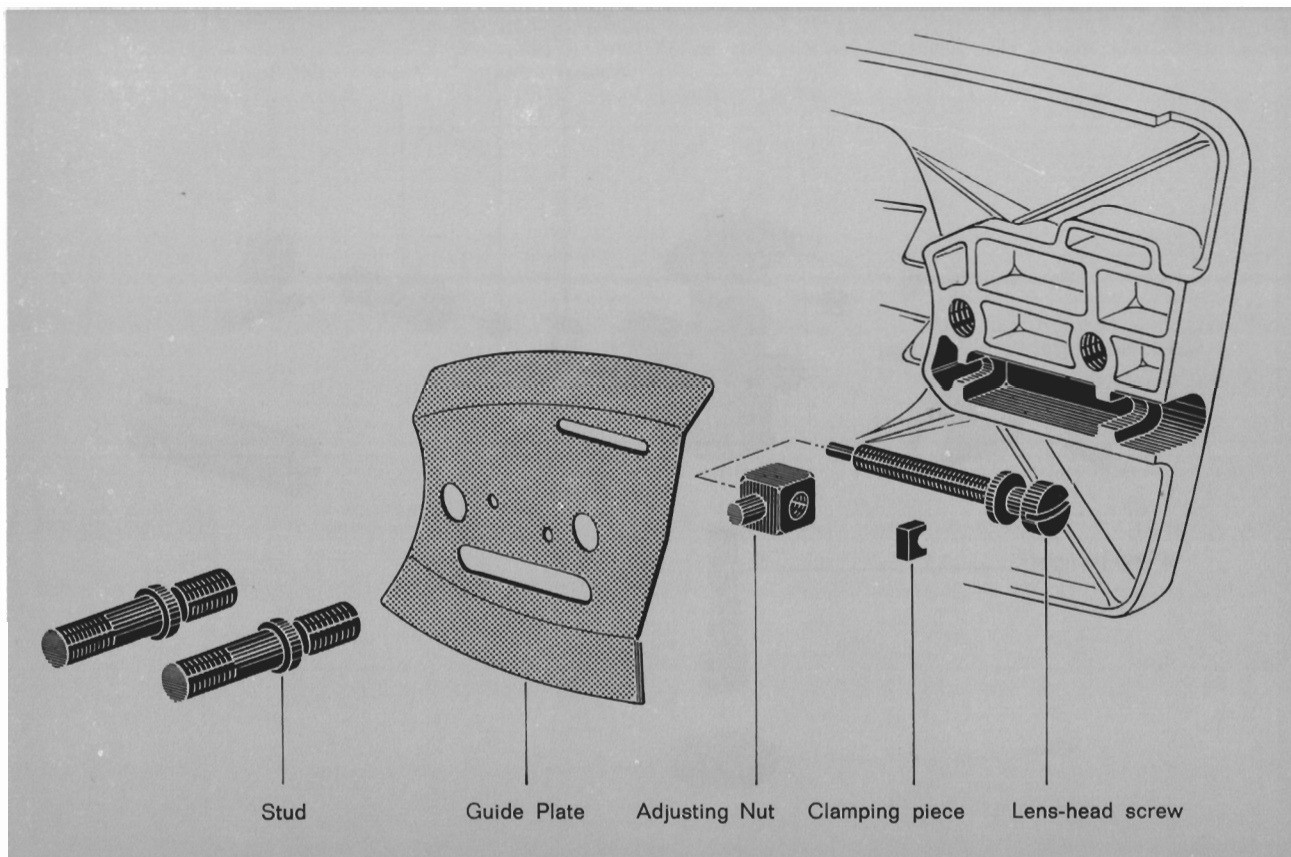
Guide Bar and Chain Tensioning Device

The guide bar is adjustably positioned between the two guide plates at the bar connecting side of the crankcase with its long slot resting on the collar of the two studs.

Depending on which side the bar is mounted, one of the two bar holes beside the long slot receives the bolt of the chain tensioning nut. Two smaller holes of 4 mm (.16 in.) diameter are bored through into the groove of the guide bar on either side of the bar. The chain oil is pumped into the groove and to the chain through the hole which is on the top.

Wood chips or resin may clog the holes partly or completely. Always clean the upper hole when reversing the bar.

Every guide bar is subject to wear. Therefore, check condition of guide bar on all saws you get for repair. If bar wear exceeds the limit of 36 mm (1.44 in.) longitudinally and 7 mm (.28 in.) groove width respectively, the bar groove must be reconditioned. If bar wear has not yet reached this limit you may rework the groove with a wheel of 1,7 mm (.068 in.) thickness. Otherwise, you should regrind it.



Repair is not possible if groove walls are cracked or broken.

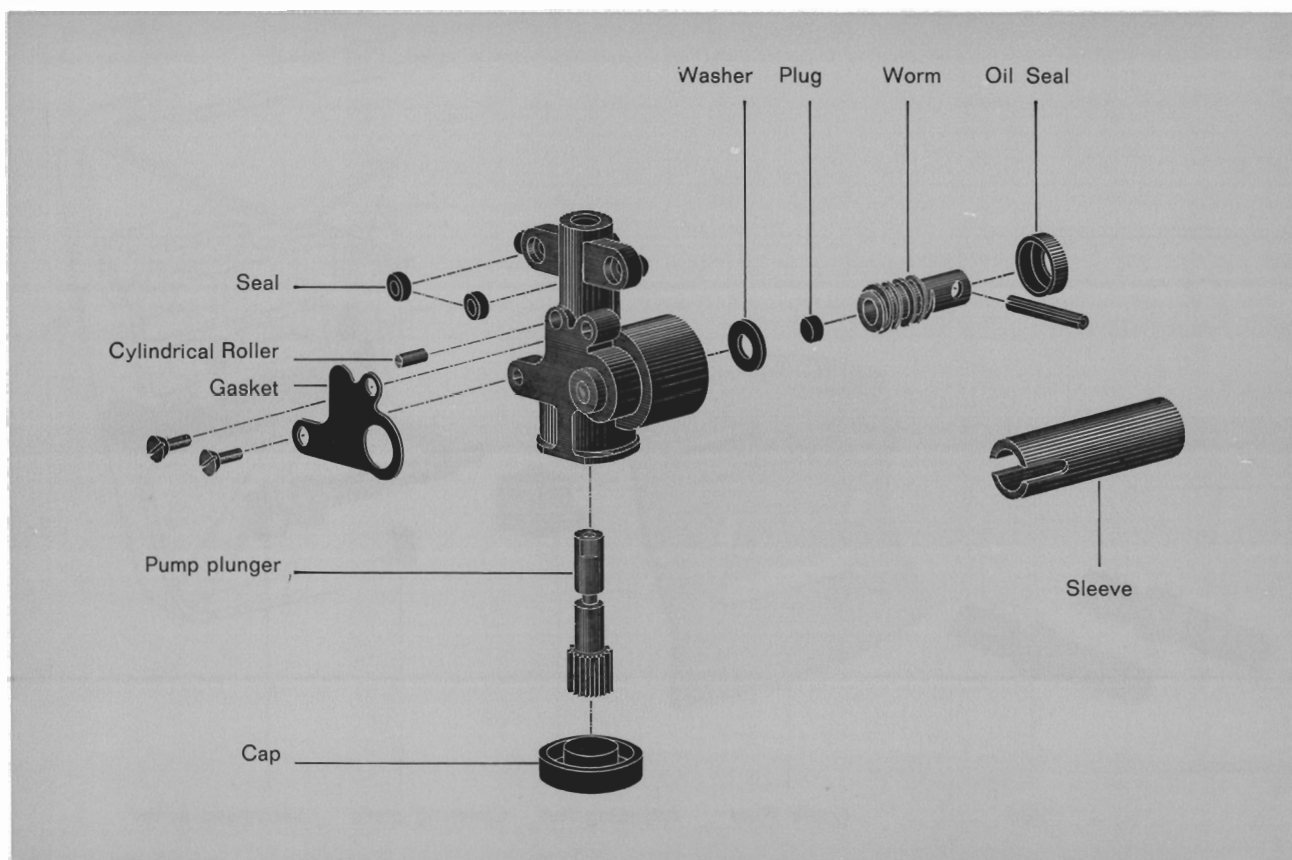
Flatten bent bars under a power press or by careful hammer blows on a level steel base plate. Don't hammer groove walls. They could break! If groove is expanded place groove gauge into the groove and close groove to a width of 1,7 mm (.068 in.) by rolling.

Open closed groove walls carefully with a groove opener.

The bar rails should form an angle of 90 degrees to the lateral side of the bar. Regrind unevenly worn rails. Smooth point of chain entry with a feather edge file.

The chain tensioning device is positioned in the housing groove behind the inner guide plate. It consists of the lens-head screw and the adjusting nut.

The individual parts can be exchanged only with the two bar studs and the guide plate being removed. To remove the studs heat housing a little bit.



Chain oil tank and oil pump

The chain oil tank is positioned inside the chain sprocket cover. It has a capacity of abt. 350 ccm (21.36 cu.in.).

The tank wall towards the chain sprocket is provided with a protecting plate. This plate prevents puncturing of wall in case of chain breakage or stones being dragged by chain.

Repair

Remove oil tank cover for cleaning inside of tank, oil pickup body and oil channel. Make sure that sealing surfaces at tank and cover and the gasket itself are in proper condition. Don't use cementing material, otherwise inside of tank may get contaminated. A correct sealing is achieved by uniformly tightening the opposing cylinder-hd. screws.

If the pad at the outside of the tank cover should be missing, glue on a spare pad with a commercial adhesive.

The oil pump is fastened to the chain sprocket cover beside the oil tank with two countersunk screws. There is a gasket between oil pump and cover. Don't damage or forget this gasket when reassembling the oil pump. Disassemble oil pump only after having checked all other possible causes for malfunctioning.

Causes for insufficient or completely failing chain lubrication may be:

Trouble causes

Oil inlet hole into guide bar clogged

Tank vent in oil filler cap clogged

Oil pickup body, fitting or channel clogged by foreign matters or resinified

Hose of oil pickup body slipped from fitting

Oil pickup body became porous or gummed by aging

To disassemble oil pump remove the two washers and the plug. Remove cylindrical roller with a magnet. If you shouldn't have a magnet or a magnetized screwdriver a drop of glue will do the same job. Then remove pump piston by gently tapping the housing against the ball of your thumb.

Disassembly of oil pump

The worm can be removed only with a puller. Don't remove cylindrical pin. If pin has become loose, the pump must be exchanged.

After a thorough cleaning of the housing and all metal parts in gasoline, check suction channel carefully for free passage. Check all rubber parts and gaskets for proper condition. If they don't look too good when overhauling the machine, exchange all gaskets, plugs and washers. All parts can be supplied for repair purposes.

The 1108 power chain saw is equipped with an all-position diaphragm carburetor. This type of carburetor enables quick changing of working position. A fuel pump which is part of this carburetor, ensures an uninterrupted fuel feed in every position of the power chain saw. The air needed for combustion is sucked in through the filter adaptor and the air filter.

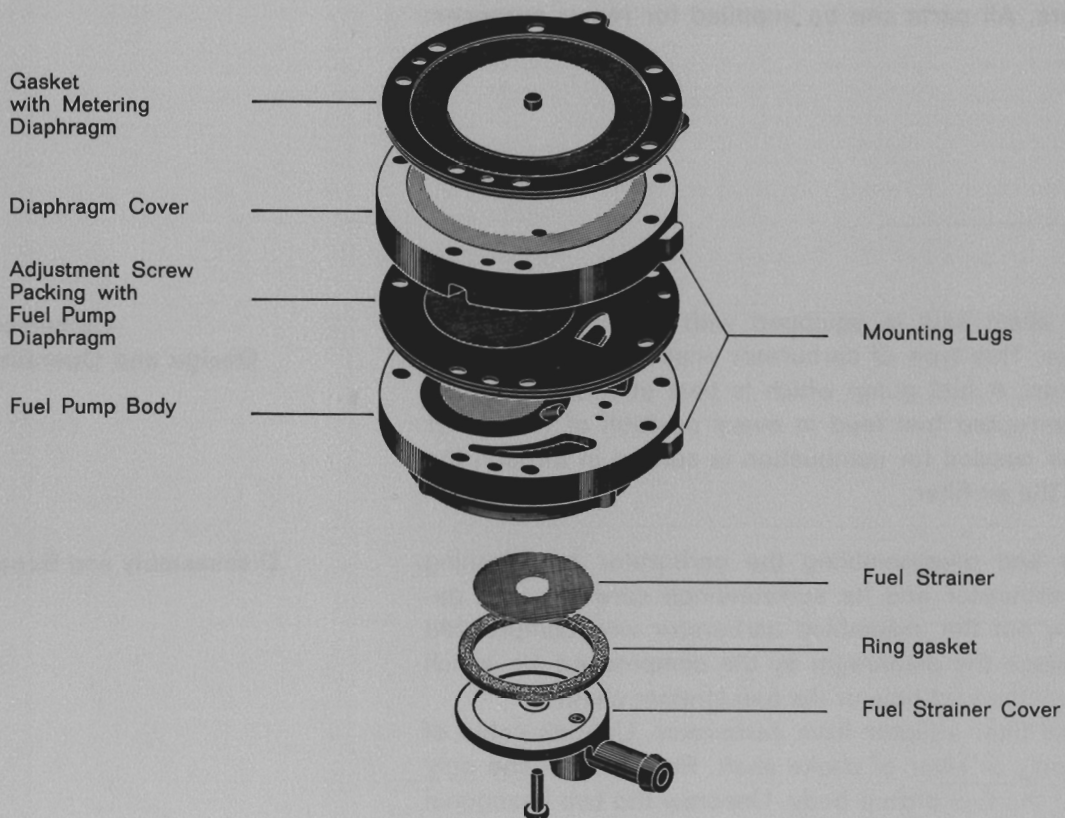
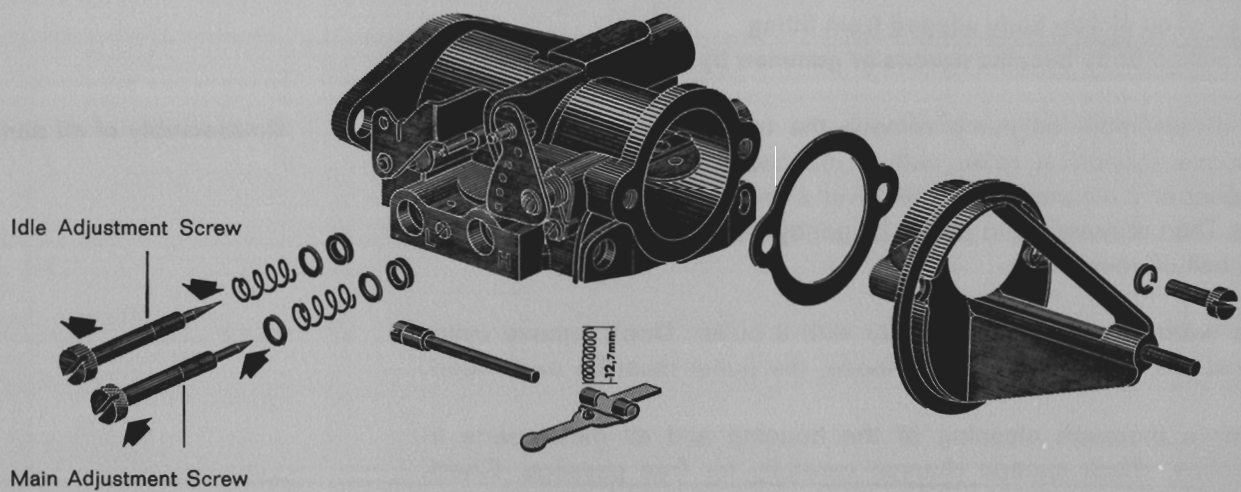
Carburetor Design and Operation

Before removing and disassembling the carburetor for cleaning or repair flush carburetor and its surroundings carefully with gasoline. Don't blow out the assembled carburetor with compressed air. You may damage the diaphragm by the compressed air, which could enter through the vent hole or the fuel strainer cover.

Unscrew filter and filter adaptor from carburetor. Unhook cable of speed governor only at lever of choke shaft. Remove fuel line only from the elbow of the fuel pickup body. Unscrew the two hexagonal nuts at carburetor flange with a 10 mm (.4 in.) wrench. Now the carburetor can easily be removed from the studs.

Use only clean containers and gasoline for a thorough flushing of the carburetor. Cleaning rags, scribes and brushes are not suitable for cleaning the carburetor.

Disassembly and Repair



Start disassembling the carburetor by unscrewing the lens-head screw of the fuel strainer cover and the six lens-head screws at the fuel pump body. The diaphragm cover and the fuel pump body are provided with a lug. Insert screwdriver only at that point for prying off the parts. Use only your hand for further disassembling the carburetor, in order not to tear the diaphragms and gaskets.

Remove idle adjustment screw, main adjustment screw and inlet control lever pinion screw with inlet control lever, inlet tension spring and inlet needle valve from carburetor body. Be careful not to change the shape or the spring tension of the inlet control lever and the inlet tension spring.

Place all individual parts on a sheet of paper in the same sequence as they have to be reassembled. Because of the woolen fibers, cleaning rags are not suitable for this job. Wash all parts in a clean container and only with clean gasoline. If you have compressed air at hand, blow out channels and nozzle orifices of carburetor and of fuel pump body. Check all gaskets and diaphragms for proper condition, especially the valve flaps of the pump diaphragm and the control diaphragm and exchange, if necessary.

Reassemble carburetor in reverse sequence of disassembly. Tighten lens-head screws at fuel pump body crosswise and uniformly. You can distinguish the idle adjustment screw which is positioned at the left side of the carburetor body, from the main adjustment screw by its longitudinally knurled head and its slender nozzle needle.

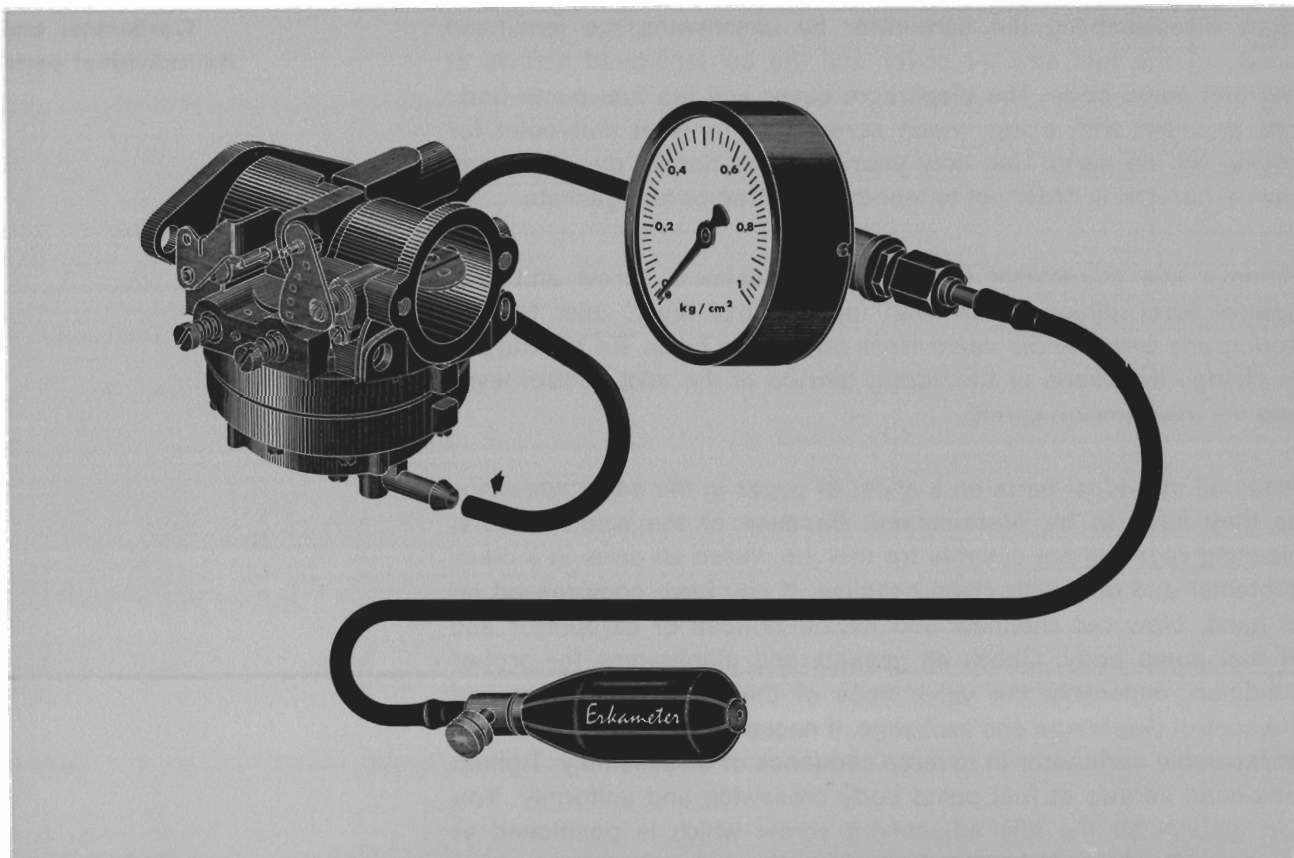
Be very careful when screwing in the two adjustment screws. If you continue screwing after you feel that the screws are seated, the needle point may act like a wedge and may damage the nozzle holes in the carburetor body or break off.

Don't bend inlet control lever. It must be flush with the bottom of the housing. Don't stretch spring. Its correct length is 12,7 mm ($\frac{1}{2}$ in.).

Clean fuel line and fuel pickup body and check on proper condition before reassembling the carburetor. The hose of the fuel pickup body may have become brittle and stiff by aging or by resin. Flush fuel tank thoroughly with clean fuel and check tank halves for proper sealing.

Don't damage sealing surfaces at cylinder and carburetor, the gaskets and the carburetor adaptor. Exchange damaged gaskets. For fastening the carburetor adaptor you need one bushing (for heat insulation – made of plastic material), one washer, one lock washer and one hexagonal nut on each side. Tighten hexagonal nuts firmly and uniformly.

Insert fuel pickup body together with elbow into tank hole and slip fuel line over the fittings at the elbow and the carburetor, but be careful not to bend it.



Carburetor adjustments

The final adjustment of the carburetor depends on the local atmospheric conditions. The basic adjustment is as follow:

Turn in both adjustment screws carefully until you feel a slight resistance.

Open idle adjustment screw counterclockwise by three quarters of a turn.

Open main adjustment screw counterclockwise by abt. one turn.

This means that when turning both adjustment screws counterclockwise the carburetor gets more fuel. Start engine at this basic adjustment. Adjust idle speed with idle speed regulating screw so that chain sprocket does not yet rotate when engine is idling. Let engine warm up with this adjustment. Thereafter, turn the engine to different positions. The idle speed must be constant at every position. If engine speed changes, you must gently open or close the adjustment screws.

Pressure testing carburetor

If you have carburetor problems it is advisable to check the carburetor with a carburetor pressure testing device. Connect the open hose end of the pressure testing device with the inlet fitting at the fuel strainer cover of the carburetor. Close venting screw at pressure ball and squeeze the ball until the pressure gauge indicates a reading of 0.4 kp/cm² (5.7 lbf./in.²). The carburetor, up to the inlet control lever including the pump diaphragm is properly sealed if there is no drop in pressure. If pressure changes you must check carburetor and replace faulty parts.

Rewind starter Relieving tension of rewind spring

To replace the rewind spring or the starter rope, remove rewind starter from fan housing. For this purpose first relieve tension of rewind spring as follows: Pull starter rope out by about 30–40 cm (12"–16"), hold pulley, place starter rope into the recess of the rope pulley, unwind starter rope and release pulley slowly. In this way pre-tension of rewind spring is relieved. If rewind spring or starter rope is broken the pre-tension is already relieved.

Remove retaining ring of rewind starter holding the check plate so that it cannot jump out and the brake spring cannot get lost.

Disassembly and Repair

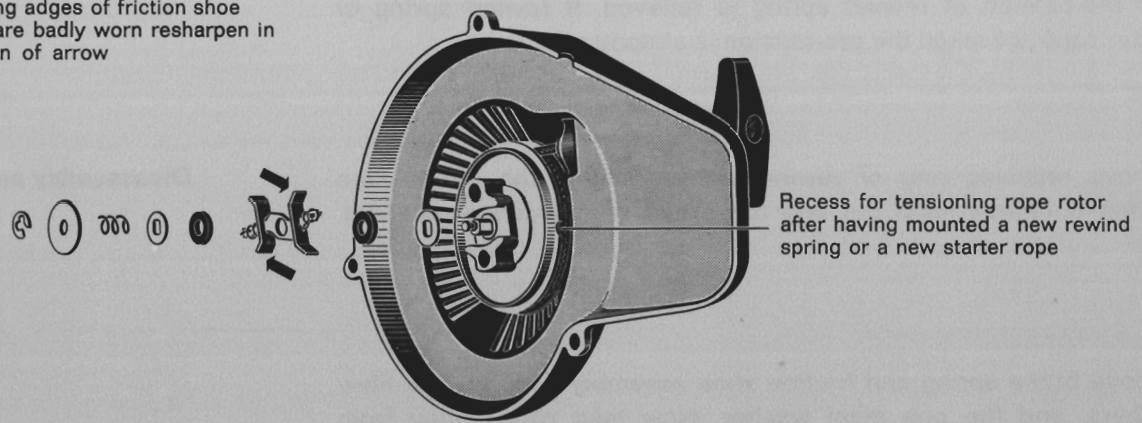
Remove brake spring and friction shoe assembly with the two fibre washers, and the one steel washer. Now take rope pulley from shaft. If spring is in proper condition be careful when removing the rope pulley as the spring may jump out of the housing.

The rewind spring which you find under the Resitex washer is located in an open spring housing. If spring should have uncoiled from the housing coil it into the housing in clockwise direction, starting with the outer loop and ending with the inner loop. The spare rewind springs are already mounted in the spring housing. To re-assemble the rewind starter place spring housing with rewind spring with its closed side into the fan housing. Mount the Resitex washer and rope pulley on the open side of the spring housing. Hook outer loop of rewind spring into the boss of the fan housing. Slide the rope pulley into place and check to be sure that the open end of the annular groove at the rope pulley engages the rewind spring. Mount friction shoe with fiber washers and steel washer, secure the brake spring and the check plate with the retaining ring.

The installation of a new starter rope can be done only with rope pulley being removed from the saw. Insert the new cord into pulley and knot one end. Thread other end through hole in fan housing, then through handle and secure it with a double knot. The correct length of the cord is 100 cm (40"). To reassemble the rewind starter slide the pulley on the shaft with rope fully unwound from the pulley so that the inner loop of the rewind spring is hooked into the boss of the rope pulley. Then reassemble rewind starter as follows: brake washer, friction shoe, brake washer, washer, friction shoe spring, check plate and retaining ring.

Assembly of a new starter rope

If leading edges of friction shoe plates are badly worn resharpen in direction of arrow



Pull a loop of cord up between rope pulley and housing. Place starter rope into the recess of the rope pulley and re-tension the rewind spring by turning the pulley clockwise about seven turns. Hold pulley, pull the cord out, let pulley turn back slowly, wind the rope onto the pulley. The spring is now correctly tensioned if pulley can still be turned one turn before reaching maximum spring tension when the cord is pulled out fully. Excessive spring tension will cause breakage of the spring.

General hints

When repairing the rewind starter inspect fiber washers. Fouled, dirty or oil saturated fiber washers have a reduced braking action and will cause problems. These washers are acting as brake washers and are therefore subject to wear. For this reason they must be replaced from time to time. The friction shoes are ground at their ends. That side of the friction shoe which engages the starter cup first when starting, has a ground angle of 60° . The opposite side has an angle of 90° . The edges of the friction shoes get dull after prolonged operation and will cause problems. Badly worn starter cups have to be replaced. You can increase the service life of the starter cup considerably by checking the ground edges of the friction shoe at regular intervals.

Speed governor

The speed governor is located in the fan housing and is activated by the cooling air stream. It acts on the choke shutter at the carburetor via the governor cable and prevents over-speeding without loss of power. Adjust maximum speed with warm engine and with correct carburetor adjustment by changing the position of the hook-on spring on the notched speed control base. Make this adjustment with engine unloaded. The correct maximum speed of the engine is about 9000 RPM. After the speed adjustment secure hook-on spring on the notched speed control base with sealing varnish.

Ignition System and Spark Plug

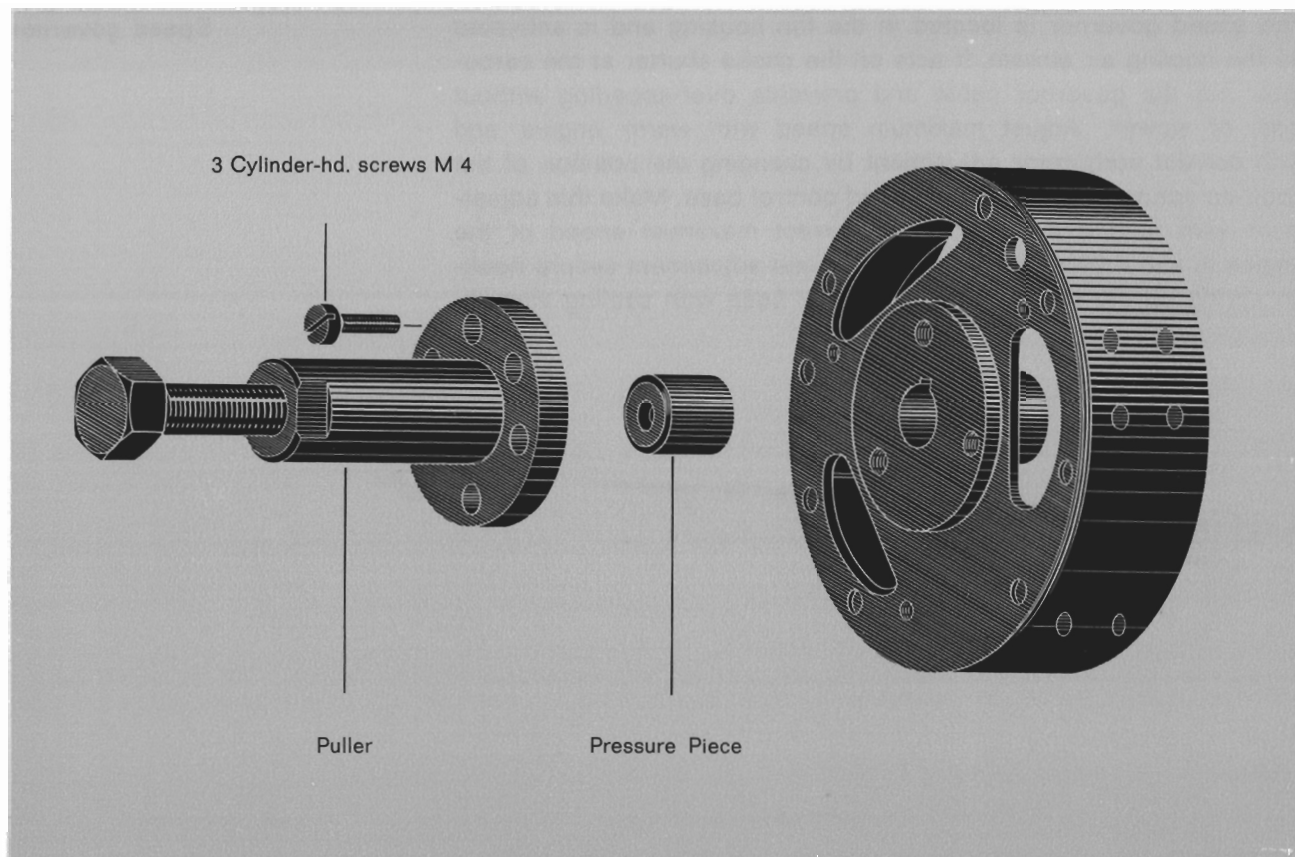
The Bosch flywheel magneto is positioned inside the crankcase at starter side. It consists of the rotating part, the flywheel and the stator plate.

Disassembly and Repair

Unscrew fan housing and fan wheel with the screwdriver. At this side the crankshaft nut has a normal thread. Therefore, unscrew it counterclockwise with a 17 mm (.67 in.) socket wrench. Lock crankshaft with crankshaft locking screw as when mounting the clutch. The flywheel is positioned on the tapered end of the crankshaft and is secured against twisting by a woodruff key. It can be removed only with our flywheel puller.

For protecting the thread place thrust piece on crankshaft. Turn back hex.hd. screw of flywheel puller until flange of flywheel puller is in contact with flywheel, and can be fastened with the three M4 cylindrical screws. Screw in hex.hd. screw with a 17 mm (.67 in.) spanner or socket wrench until flywheel comes off. If you gently tap on head of screw with a rubber hammer when screwing, the flywheel will get loose more easily.

The stator plate is attached to the crankcase by two cylinder-hd. screws. Lift ground wire at contact sleeve, turn it by 90 degrees and push it out of the wire clamp beside the speed governor. Both primary wire and ground wire lead through the same grommet into crankcase. Make sure that the grommet is correctly mounted.



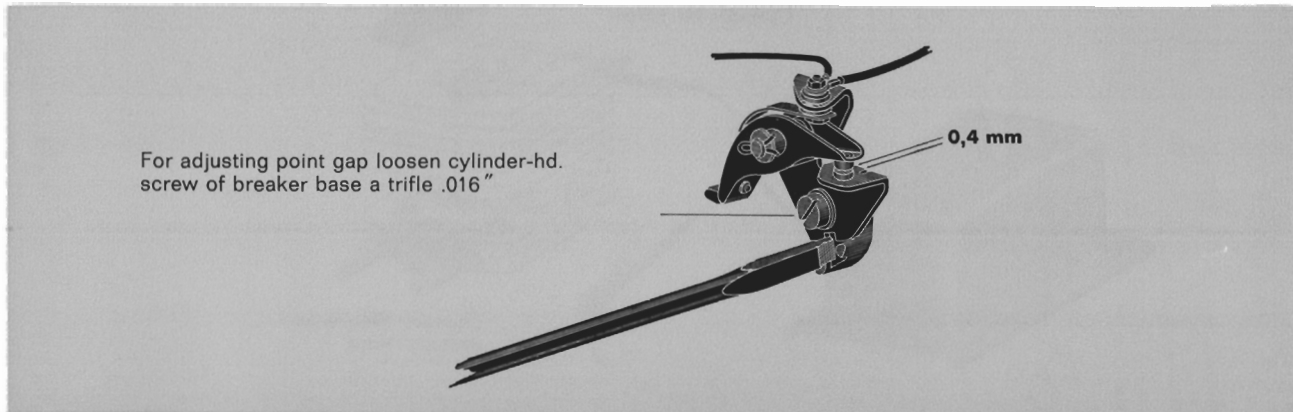
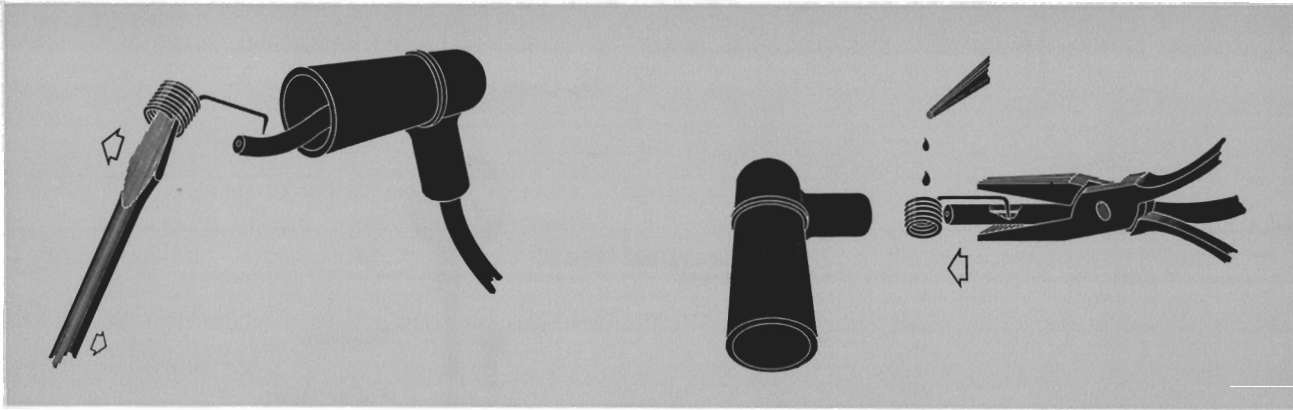
The primary wire connector is attached to the primary wire by a spring. Remove spring with cable from terminal with a screwdriver and unhook spring. Then you can remove the wire from the stator.

When attaching a new ignition wire to the stator, don't forget to slide the grommet over the terminal. Apply Bosch grease to grommet and wire end. Thread other wire end together with ground wire through grommet and crankcase hole to carburetor side. Press full length of right-angled end of hook-on spring through the wire insulation into the core of the wire. Slide hook-on spring and ignition wire into the high tension lead connector with a pair of flatnose pliers so that the spring can be pressed over the connecting nut of the spark plug later on.

Apply some drops of thin engine oil to the coils of the hook-on spring in order to facilitate the insertion of the wire.

When checking the stator plate pay special attention to the point

and the slider at the breaker arm, the breaker base and the wick on the flat spring. Replace worn parts. When exchanging the breaker arm and the breaker base make sure that the points are parallel to each other. Otherwise, bend breaker base slightly with a pair of flatnose pliers.



Fasten stator plate slightly to the crankcase with the two cylindrical screws until you have made the ignition timing. The stator must be at the right side pointing toward the fuel tank.

Assembly of Ignition System

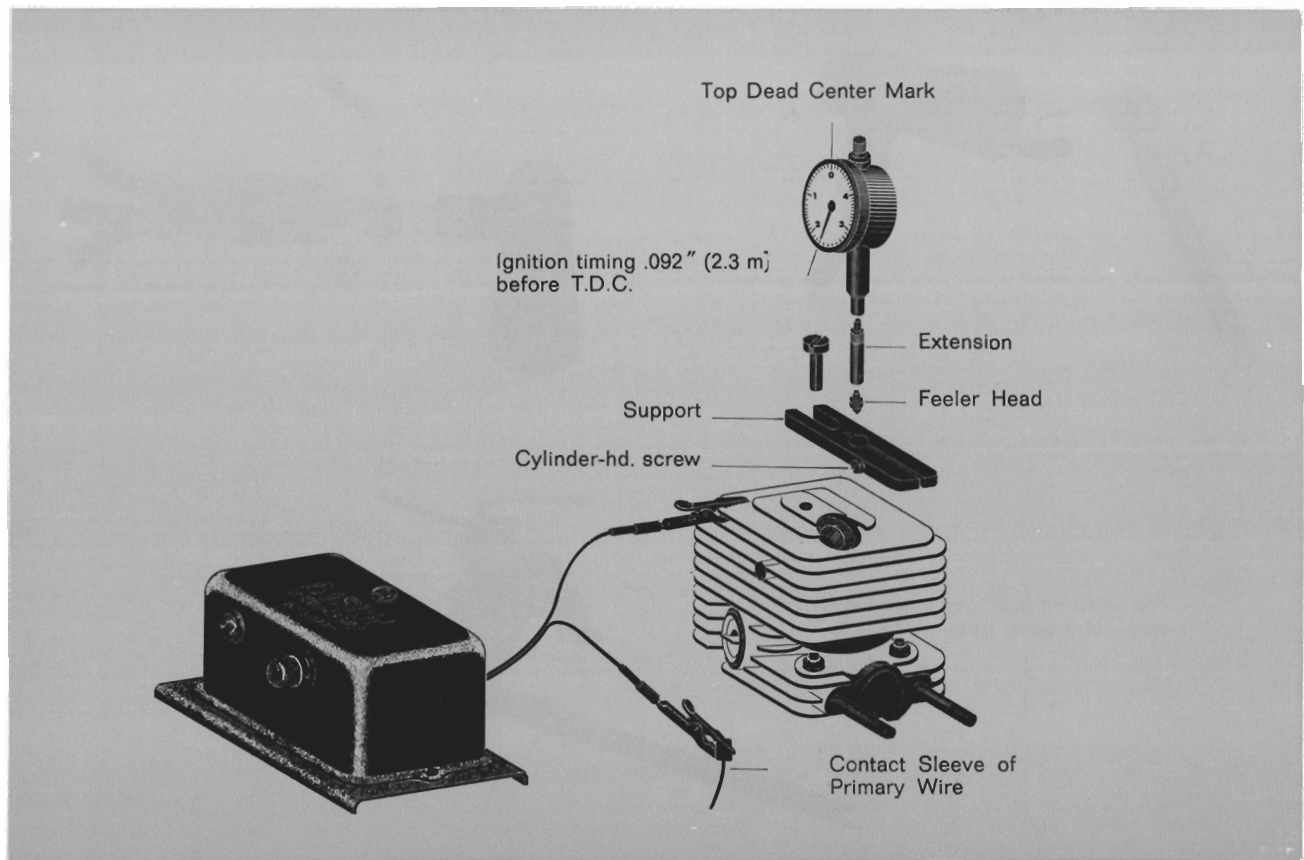
Press fanwheel on flywheel so that the three lugs at the rear side engage the recesses of the flywheel and the three cylindrical screws can be tightened.

Place flywheel with fanwheel on crankshaft. But don't forget the woodruff key and don't damage the wick and the breaker arm. The tapered bore of the flywheel and the cone of the crankshaft must be absolutely greasefree. When reassembling the stator plate, the wick and the breaker arm may have greased the cone. Clean cone thoroughly with a fiberfree rag soaked in gasoline. Tighten hexagonal nut with torque wrench to 3,5 mkg (25.3 ft.-lbs.)

The point gap setting with open breaker arm should be 0,4 mm (.016 in.). Inaccurate breaker point gap and fouled points are often the cause of trouble. The gap can be checked and adjusted through one of the three holes in the flywheel.

Adjust ignition timing by turning the stator plate and by using the timing gauge and an ignition timing device. Screw timing gauge with support on cylinder so that feeler of timing gauge projects into the cylinder without contacting the spark plug hole.

Ignition timing



The total measuring range of the timing gauge amounts to 5 mm (.2 in.). Insert timing gauge into the support in such a way that abt. 0,5 to 1,0 mm (.020—.040 in.) are left to end position of pointer with piston at top dead center.

Tighten cylinder-hd. screw in slot of support only slightly. If you tighten too much you may lock the feeler. Connect one clamp of ignition timing device with ground (cylinder fin) and other clamp with contact sleeve of ground wire. Switch ignition timing device to "ON"-position.

The correct ignition timing is $2,3 + 0,1$ mm ($0.92 + .004$ in.) before top dead center. Determine top dead center by turning the flywheel in direction of rotation. Turn timing gauge to —0— mark of scale. If you continue turning the flywheel in direction of rotation the pilot lamp should light up at a pointer position of 2,3 mm (.09 in.) before —0—. If pointer lights up before or after the pointer has reached 2,3 mm (.09 in.) the stator plate must be turned either to the left or to the right.

Recheck timing until pilot lamp lights up exactly at 2,3 mm (.09 in.) before top dead center. When you have the correct timing, tighten stator plate firmly.

Spark Plug

Ignition troubles are more often caused by faulty spark plugs than by failings in the magneto. The spark plug of the 1108 power saw has a heat value of 175. The correct spark gap is 0,5 mm (.02 in.). The spark plug has a thread of 14 mm (.55 in.). With the electrodes burning off in the course of time the spark gap will be increased. Therefore, it should be measured with a feeler gauge and re-adjusted if necessary from time to time.

Fouled spark plugs will cause ignition troubles, loss of power and higher fuel consumption. Heavily fouled or oiled spark plugs may be cleaned with gasoline. Don't use steel brushes for cleaning. Blow out spark plug with compressed air after cleaning. The spark plug cleaning device of Messrs. Bosch is a reliable helper for cleaning spark plugs and we recommend it for every serveshop.

The service life of a spark plug depends to a high degree on the fuel mixing ratio, the carburetor adjustment and the condition of the air filter. With correct carburetor adjustment and clean air filter the insulator of the spark plug will get a light brown or beige colour. The spark plug housing gets a dark grey colour with a thin, dry carbon film.

If spark plug is fouled or oiled the fuel air mixture is too rich. Then the carburetor adjustment is incorrect or the air filter is clogged. If the spark plug shows light grey or white spots, the carburetor adjustment is too lean. It may also be possible that the heat value of the spark plug is too low.

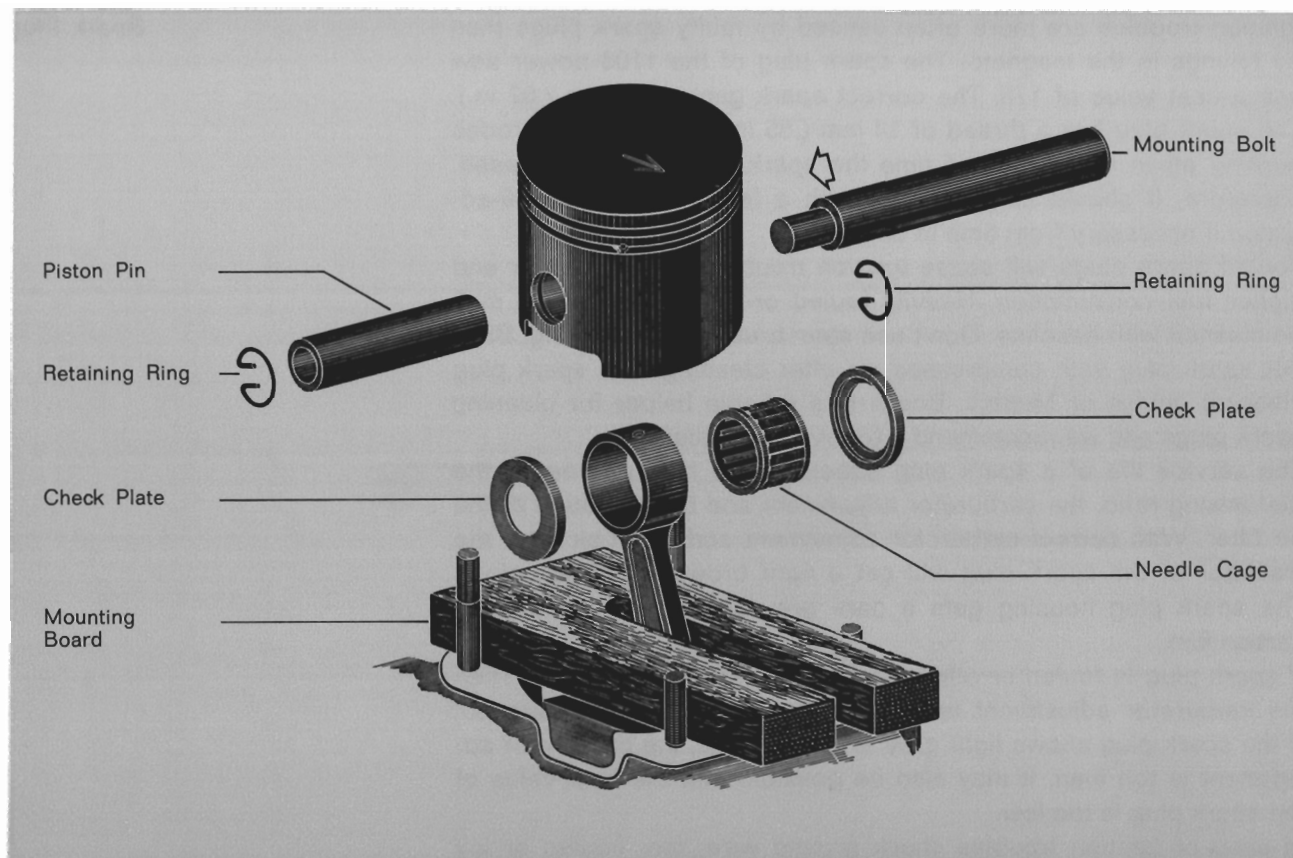
In case of ignition troubles check ground wire, too. Fouled or icy contacts in the wire connector may cause short circuits.

For removing the crankshaft you must first get access to the cylinder, Remove carburetor, muffler and spark plug.

Cylinder, piston and crankshaft

The cylinder is fastened to the crankcase by 4 hexagonal nuts. Before removing the cylinder, move piston with crankshaft down to its lowest position. Loosen cylinder gasket carefully with a knife and remove it. Remove the two filling pieces and the heat insulating bar. For disassembling the piston, you need the wooden board for locking the conrod and a bolt for removing the piston pin. Slide wooden board between bottom edge of piston and crankcase.

The piston pin is secured on each side by a retaining ring. Remove retaining rings and push out piston pin with the mounting bolt. If the piston pin should stick in its hole, apply only light hammer blows on the mounting bolt while holding the piston at its opposite side. Remove the two check plates and the needle cage from the conrod.



The crankcase halves are tightly connected by cylindrical pins and are screwed together by cylinder-hd. screws.

Remove fan housing, flywheel and clutch in the usual way. Remove adjusting spring at clutch side, and woodruff key at flywheel side, from crankshaft. Unscrew cylinder-hd. screws. Knock out left and right cylindrical pin alternately with hammer and punch. Separate the two halves by applying light blows with a rubber or plastic hammer on the crankshaft end. Protect thread against damage by first screwing on the hexagonal crankshaft nut.

Clean main bearing of crankshaft in clean gasoline. Blow out bearings with compressed air. The bearings must run noiselessly and smoothly.

The conrod is inseparably connected with the crankshaft. If the conrod bearing is worn badly, the complete crankshaft assembly must be replaced.

The crankshaft is fitted into the crankcase with an end play of 0,1 to 0,4 mm (.004—.016 in.). The end play should be kept as low as possible. However, the minimum play should be not less than 0,1 mm (.004 in.). When adjusting the end play you must consider the crankcase gasket.

Replace leaky oil seals. Press in oil seals only with a pressing ring under a lever press. The main lip should point in direction of crank chamber.

You may exchange oil seals without disassembling the engine. You can easily remove the oil seals with the lifter. Before pressing them in again slide mounting sleeve over crankshaft end.

When reassembling the crankshaft protect oil seals with the mounting sleeve. Don't damage the sealing surfaces of the crankcase halves and the gaskets. Don't use cementing material otherwise the crankcase may be contaminated. Don't forget to put the heat insulating bar between fuel tank and crank chamber. Tighten cylinder-head screws crosswise and uniformly.

Tighten hexagonal nuts at flywheel- and clutch side with torque wrench to 3,5 and 4,0 mkg (25.3 and 28.9 ft.-lbs.) respectively.

Piston and piston pin are distinguished by black or white marks. Do not mount a piston pin with a black mark into a piston with a white mark or vice versa. Only pistons and piston pins with the same colour match. When reassembling the piston make sure that the piston is positioned on the conrod in such a way that the arrow points into direction of exhaust. Grease piston pin and needle cage sparingly. Insert needle cage and the two check plates into small end of conrod. Insert retaining ring into one side of the hole of the piston. Install piston pin and secure it at the other side with a second retaining ring. Grease the two compression rings slightly and reinstall them in correct position into the ring grooves of the piston.

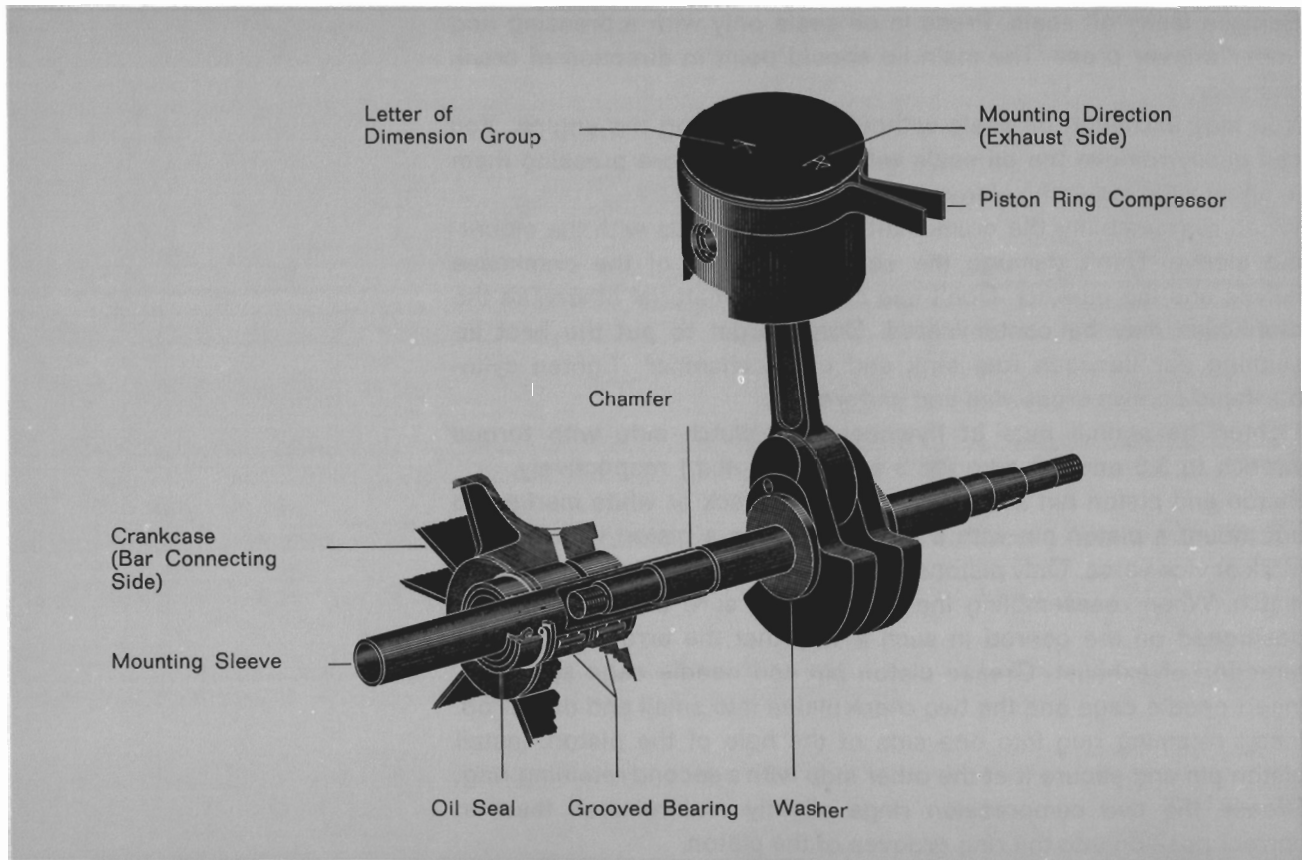
Make sure that the cylinder sealing surfaces are absolutely clean. Don't use cementing material for sealing. The cylinder gasket must be in good condition and its shape must exactly fit with the crankcase. There are different tolerance groups of cylinder and piston which are marked by the letters A–K. The letters are stamped into the piston head and into the bottom of cylinder. Mount only cylinders and pistons of the same tolerance group. If you don't have cylinders and pistons of the same tolerance group at hand, you may install pistons for instance of group B into cylinders of group A–B–C. Pistons of group E can be mounted into cylinders of group D–E–F whereas pistons of group H are matching cylinders of group G–H–J–K.

To mount the cylinder, you need a piston ring compressor and the wooden board for locking the conrod. Compress piston rings with the piston ring compressor while the piston rests firmly on the wooden board.

Install cylinder in such a way that intake slot is in direction of carburetor. Don't turn cylinder during installation, this would hook the compression rings into the slots and break them.

The cylinder must be exactly aligned after having been put onto the machine. Mount carburetor with filter adaptor for aligning cylinder. The seam of the crankcase halves must be exactly vertical below the stud of the filter adaptor.

Placing cylinder over piston



Tighten the four hexagonal nuts with the lock washers crosswise and uniformly. Press in the two filling pieces at the left and right side of cylinder bottom.

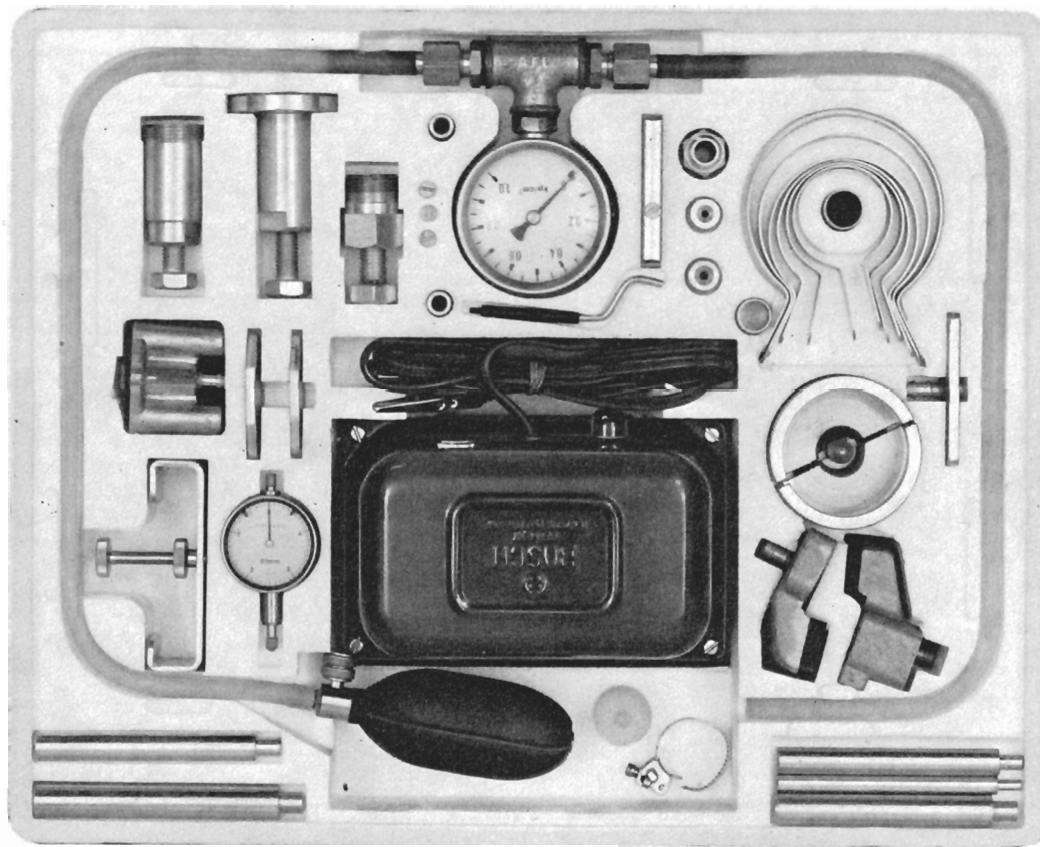
On request the saw can be equipped with a stop switch which consists of a push button with leaf spring. A large hole for the button, an insert for the leaf spring and a small hole for riveting the spring are precast from below into the shroud. Therefore, if you want to install an ignition stop switch you only have to open the holes and to rivet the switch.

Pressure testing carburetor

It is possible to check the driving parts of the engine for leakage, due to faulty seals or flange gaskets, as well as porous housings and cracks in the crankshaft. For this test you need the carburetor and crankcase testing device. Remove carburetor assembly and muffler, plug exhaust flange and connect flange for the crankcase testing device with the carburetor adapter. Slip open hose end of pressure testing device over nipple at carburetor adapter. For this test you must leave the spark plug in the cylinder. Raise the piston to top dead center. If the pressure of 0.5 kp/cm^2 (7.1 lbf./in.^2) remains constant it indicates that the crankcase is not leaking. If pressure testing device over fitting at carburetor adaptor. For this

Special tools and devices for STIHL Power Chain Saw 08 S Model 1108

Nomination	Ordering Number		
Puller for flywheel	1107	890	4500
Multi-purpose puller	1106	890	4510
Lifter for oil seals	1106	890	6200
Torque wrench for chain sprocket and magneto	5910	890	0310
Groove gauge for guide bar .063" gauge	1106	893	9000
Mounting tool for helicoil thread insert	5910	850	5200
Mounting tool for grip insert	5910	850	5210
Insert 21 mm for crankshaft nut and chain sprocket	5910	893	5615
Sleeve for clutch and threaded bushing	1108	893	4500
Crankcase testing device	1106	850	2900
Speedometer with insert	5910	850	1000
High-pressure grease gun	1108	890	2500
Mounting bolt for piston	1108	893	4700
Wooden board for mounting cylinder	1108	893	4800
Mounting sleeve for crankcase	1107	893	4600
Piston ring compressor	1108	893	4900
Groove opener for guide bar .063" gauge	1106	893	9200
Ignition timing gauge with dial gauge	1106	890	8700
Ignition timing device for battery	0000	890	8905



**Complete Set of Special Tools
in Styropor-box
for STIHL Power Chain Saws
Ordering No. 0000 890 1700**